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Project Summary

Pollution Prevention Opportunity Assessment: General Mail and Vehicle Maintenance Facility, United States Postal Service, Buffalo, NY

The Pollution Prevention Opportunity Assessment (PPOA) summarized here was conducted at a U.S. Postal Service (USPS) Facility in Buffalo, NY. The PPOA documented and quantified waste generation at the General Mail Facility (GMF) where mail is processed, and at the Vehicle Maintenance Facility (VMF), where 1,200 postal vehicles are serviced and refinished. The report identified potential source reduction and recycling initiatives, as well as areas where further research is needed. The economic and technical feasibility of selected opportunities and techniques to eliminate, reduce, or recycle wastes were investigated. A limited implementation plan was developed.

This Project Summary was developed by EPA's Risk Reduction Engineering Laboratory, Cincinnati, OH, to announce key findings of the research project that is fully documented in a separate report of the same title (see Project Report ordering information at back).

Introduction

This PPOA of the USPS GMF and VMF in Buffalo, NY, was conducted for the U.S. Environmental Protection Agency (Region II) and the USPS (Northeast Region) to investigate potential pollution prevention alternatives for GMF mail processing operations and VMF vehicle servicing and refinishing operations.

The PPOA report identifies and discusses the economic and technical feasibility of potential source reduction and recycling opportunities and presents a limited implementation plan. It should be noted that although USPS facilities were the subject of the assessment, the alternatives presented also apply to commercial package handling operations, as well as other government and commercial vehicle servicing facilities.

Procedures

The assessment was conducted using the procedures outlined in EPA's Facility Pollution Prevention Guide (EPA/600/R-92/088). The assessment had two major phases. The first phase quantified waste generation and management practices. The second phase identified and evaluated the feasibility of opportunities and techniques to eliminate, reduce, or recycle wastes. The project included:

- Selecting assessment targets;
- Assessing onsite pollution prevention capabilities;
- Generating pollution prevention options;
- Preparing a feasibility analysis of selected options;
- Preparing a limited implementation plan.

The PPOA Team that conducted the assessment was composed of employees from an outside environmental consulting firm and USPS representatives.

Results and Discussion

General Mail Facility

The Buffalo GMF processes 5 million pieces of mail a day. Three areas are responsible for generating the majority of

the facility's wastes: the offices, the mail sorting floor, and the unloading and loading docks. The GMF generates approximately 537 tons of waste/yr. Approximately 253 tons is cardboard. Major waste streams are shown in Table 1. The composition of much of the waste is undetermined; the "missing" tonnage may include corrugated plastic containers, pallets, aluminum, or metals improperly discarded instead of recycled, or it may be composed of materials, such as pallets, plastic film, and corrugated cardboard at the Buffalo facility which is not easily monitored and may have been underestimated. Annual solid waste disposal costs are approximately $42,000.

Table 1. *Estimated Solid Waste Generation,USPS Buffalo General Mail Facility, 1991-1992*

Waste Stream	*Quantity, tons*
Cardboard	*253.5*
Computer paper	*2.0*
Mixed office paper	*46.0*
Aluminum cans	*0.6*
Other metals	*30.0*
Plastic film	*13.0*
Undetermined	*191.9*

The major recommended source reduction and recycling options are shown below. Discussions for each of the options are included in the GMF portion of the full report.

- Establishing recycling programs for each waste stream;
- Reducing packaging;
- Establishing a duplex copying policy;
- Improving waste management cost accounting;
- Improving employee involvement in pollution prevention;
- Changing procurement specifications.

Vehicle Maintenance Facility

The Buffalo VMF operations include vehicle maintenance and automotive refinishing operations. The Buffalo USPS fleet consists of 1,200 vehicles including passenger cars, trucks, and semi-tractor trailers. Major waste streams generated at this facility are shown in Table 2. Waste disposal costs are approximately $21,645 annually.

A number of source reduction and recycling options were identified and are discussed in the full report. Major source reduction and recycling options are:

- Switching to waterborne low volatile organic compounds (VOC) paints;
- Using high-volume/low-pressure (HVLP) spray guns;
- Switching to aqueous cleaners;
- Using a paint mixer system;
- Installing a gun washer station;
- Training operators.

The economic feasibility of the HVLP spray guns and the paint mixing system is shown in Table 3.

Conclusions

Postal service employees have enacted a number of activities to reduce or recycle VMF and GMF wastes. Additional pollution prevention opportunities to further eliminate or reduce wastes are identified in the report. Painting operation and engine and brake parts washing present the most opportunities for pollution prevention at the VMF. Waterborne coatings and high transfer efficiency paint delivery systems will eliminate or significantly reduce hazardous wastes and VOC emissions from painting operations. Replacing organic cleaning solvents with aqueous parts washers and chemicals will eliminate hazardous solvent wastes from engine and brake parts washing operations. Enacting these options can potentially reduce annual hazardous waste generation by 5,954 lb.

Implementing options recommended in the report can assist the Buffalo facility staff in meeting the USPS goal to reduce 1992 waste levels by 25% by 1993 and an additional 25% by 1995. Eliminating

Table 2. *Estimated Waste Generation, USPS Buffalo Vehicle Maintenance Facility 1991*

Waste Type	*Annual Quantity*
Oil Filters	*1,800 filters*
Lead acid batteries	*280 batteries*
Brakes	*1,200 - 1,500 sets*
Cracked corn absorbent	*30 - 60 gal*
Soiled rags	*8,515 rags*
Paint equipment cleaning solvent	*1,118 lb*
Waste paint thinner	*1,664 lb*
Solvent brake cleaner	*2,106 lb*
Solvent engine parts cleaner	*5,746 lb*
Used oil (engine, brake fluid, transmission fluid)	*2,830 gal*
Used antifreeze	*300 gal*
Radiators	*280 radiators*

Table 3. *Cost Benefit Analysis for Selected Options*

Option	*Cost Benefit*
HVLP paint application system*:*	
Total annual avoided costs	*$11,196*
Net annual benefit	*$ 8,138*
Pay back period	*Immediate*
Gun washer station*:*	
Total annual avoided costs	*$ 8,567*
Net annual benefit	*$ 3,000*
Pay back period	*Immediate*

solvent-borne paints will significantly reduce emissions of four EPA 33/50 Program target chemicals generated during painting operations at the VMF. (The 33/50 Program is EPA's voluntary pollution prevention initiative to reduce national releases and off-site transfers of 17 toxic chemicals by 33% by the end of 1992 and 50% by the end of 1995). The options identified in the report will also reduce operating costs by decreasing disposal costs. By implementing the options described in this report the USPS has the potential to save over $100,000 on waste disposal costs/yr, as shown in Tables 4 and 5. Additionally, there are unquantified benefits such as reduced liability, paper work, and spills and spill control/disposal costs. The options identified in this report are generally applicable to the 350 vehicle maintenance facilities and 270 general mail facilities nationwide.

The full report was submitted in fulfillment of Contract No. 68-C8-0062 by Science Applications International Corporation under the sponsorship of the U.S. Environmental Protection Agency.

Table 4. *Estimated Annual Return from Source Reduction and Recycling, USPS General Mail Facility, Buffalo, NY*

Action	*Potential Monetary Benefit ($)[1]*
Current practices:	
Recycle laser printer cartridges	*1,740*
Recycle aluminum cans	*1,011*
Recycle scrap metal	*2,125*
Recycle loose cardboard[2]	*34,000*
Subtotal	*38,876*
Additional recommended measures:	
Recycle plastic film	*5,485*
Subtotal	*5,485*
Recently implemented or proposed:	
Recycle computer paper	*240*
Recycle mixed office paper	*1,955*
Replace paper hand towels with electric air dryers[3]	*50,000*
Subtotal	*52,195*
Total	*96,556*

Notes:

[1] *Monetary benefits include a $85/ton avoided disposal cost and payment for recyclable materials (aluminum, plastic film, and computer paper). Disposal costs for other locations may differ significantly. Payment for recyclable materials is based on the September 1992 market in the Buffalo area. Any use of these numbers must recognize the fact that markets for recyclable materials vary greatly with time and location.*

[2] *Cardboard recycling began as a result of the preliminary assessment findings.*

[3] *Includes replacing hand towels at Buffalo GMF and Station Branches.*

Table 5. *Potential Waste Reduction and Cost Savings for Selected Options, USPS Buffalo Vehicle Maintenance Facility, 1991-1992*

Option	*Annual Waste Reduction*	*Annual Cost Saving Potential*
Waterborne paints	*2,782 lb of hazardous waste paint/ solvent/thinner*	*$3,088 in reduced waste disposal*
Aqueous parts washer	*3,163 lb of hazardous engine and brake parts cleaning solvent*	*Undetermined*
HVLP paint application system	*50% less VOC emissions and 30% less paint solid waste*	*$8,138 in reduced raw material and waste disposal*
Gun washer station	*75% to 90% less VOC emissions*	*$2,978 in reduced raw materials and waste disposal*

Science Applications International Corporation, Falls Church, VA 22043, authored the report.
John Filippelli *(Region II, New York, NY) and* ***Kenneth Stone*** *(see below) are the EPA Technical Project Monitors.*
The complete report, entitled "Pollution Prevention Opportunity Assessment: General Mail and Vehicle Maintenance Facility, United States Postal Service, Buffalo, NY," (Order No. PB94-129798AS; Cost: $27.00, subject to change) will be available only from:

National Technical Information Service
5285 Port Royal Road
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